

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY OPERATING PERMIT

Permit No. 210TVP01

Application No. 210

Administrative Revision: December 12, 2000

Administrative Revision: December 13, 2002

Issue Date: October 20, 2000

Expiration Date: October 19, 2005

The Department of Environmental Conservation, under the authority of AS 46.14 and 18 AAC 50, issues an operating permit to the Permittee, **Nome Joint Utility System**, for the operation of the **Snake River Power Plant**.

This permit satisfies the obligation of the owner and operator to obtain an operating permit as set out in AS 46.14.130(b).

As required by AS 46.14.120(c), the Permittee shall comply with the terms and conditions of this operating permit.

All terms and conditions of Air Quality Construction No. 9932-AC013 have been incorporated into this Operating Permit. Under AS 46.14.290, the Permittee is considered in compliance with applicable requirements of this Construction Permit to the extent allowed under 42 U.S.C. 7661c(f) (Clean Air Act, sec. 504(f)) by complying with this Operating Permit.

John F. Kuterbach, Manager
Air Permits Program

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List of Abbreviations Used in this Permit

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AS	Alaska Statutes
ASTM	American Society for Testing and Materials
C.F.R.	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
dscf	Dry standard cubic feet
EPA	US Environmental Protection Agency
gr./dscf	grain per dry standard cubic feet (1 pound = 7000 grains)
GPH	gallons per hour
HAPs	Hazardous Air Pollutants [hazardous air contaminants as defined in AS 46.14.990(14)]
ID	Source Identification Number
MACT	Maximum Achievable Control Technology
Mlb	thousand pounds
NESHAPs	Federal National Emission Standards for Hazardous Air Pollutants [as defined in 40 C.F.R. 61]
NSPS	Federal New Source Performance Standards [as defined in 40 C.F.R. 60]
ppm	Parts per million
PS	Performance specification
PSD	Prevention of Significant Deterioration
RM	Reference Method
SIC	Standard Industrial Classification
SO ₂	Sulfur dioxide
tph	Tons per hour
tpy	Tons per year
VOC	volatile organic compound [as defined in 18 AAC 50.990(103)]
wt%	weight percent

Section 1. Identification

Names and Addresses

Permittee: **Nome Joint Utility System**
P.O. Box 70
Nome, AK 99762

Facility: **Snake River Power Plant**

Location: UTM 7153500m Northing; 479500m Easting, Zone 8

Physical Address: West 5th & West K St.
Nome, Alaska 99762

Owner: City of Nome
P.O. Box 70
Nome, Alaska 99762

Operator: Nome Joint Utility System
P.O. Box 70
Nome, Alaska 99762

Permittee's Responsible Official: John K. Handeland

Designated Agent: John K. Handeland
P.O. Box 70
Nome, Alaska 99762

Facility and Building Contact: Jim Taylor
P.O. Box 70
Nome, AK 99762
(907) 443-6587

Fee Contact: Jim Taylor
P.O. Box 70
Nome, AK 99762
(907) 443-6587

SIC Code of the Facility:

4911 - Electric services

[18 AAC 50.350(b), 1/18/97]

Section 2. General Emission Information

NO_x, SO₂, CO, PM-10, and HC

Operating Permit Classifications:

1. 18 AAC 50.325(b)(1) & (c)

Facility Classifications as described under 18 AAC 50.300(b)-(f):

1. 18 AAC 50.300(b)(2)

[18 AAC 50.350(b), 1/18/97]

Section 3. Fee Requirements

- 1. Assessable Emissions.** The permittee shall pay to the department annual emission fees based on the facility's assessable emissions as determined by the department under 18 AAC 50.410. The assessable emission fee rate is set out in 18 AAC 50.410. The department will assess fees per ton of each air contaminant that the facility emits or has the potential to emit in quantities greater than 10 tons per year. The quantity for which fees will be assessed is the lesser of

- 1.1 the facility's assessable potential to emit of 1705 tpy (1321 tons of NO_x, 224 tons of SO₂, 68 tons of PM-10, and 92 tons of CO); or
- 1.2 the facility's projected annual rate of emissions that will occur from July 1 to the following June 30, based upon actual annual emissions emitted during the most recent calendar year or another 12 month period approved in writing by the department, when demonstrated by
 - a. an enforceable test method described in 18 AAC 50.220;
 - b. material balance calculations;
 - c. emission factors from EPA's publication AP-42, Vol. I, adopted by reference in 18 AAC 50.035; or
 - d. other methods and calculations approved by the department.

[18AAC50.400 - 420 & 18 AAC 50.350(c), 1/18/97]

- 2. Assessable Emissions Estimates.** Emission fees will be assessed as follows:

- 2.1 no later than March 31 of each year, the permittee may submit an estimate of the facility's assessable emissions to ADEC, Air Permits Program, ATTN: Assessable Emissions Estimate, 410 Willoughby Ave., Juneau, AK 99801-1795; the submittal must include all of the assumptions and calculations used to estimate the assessable emissions in sufficient detail so the department can verify the estimates; or
- 2.2 if no estimate is received on or before March 31 of each year, emission fees for the next fiscal year will be based on the potential to emit set out in condition 1.1.

[18AAC50.410 & 18 AAC 50.350(c), 1/18/97]

Section 4. Source Inventory and Description

Sources listed below have specific monitoring, record keeping, or reporting conditions in this permit. Source descriptions and ratings are given for identification purposes only.

TABLE 1 Source Inventory

ID	Source Name	Source Description	Rating/size
5	Diesel Electric Generator	Cooper- Bessemer #LS8T	1,200 kW
6	Diesel Electric Generator	Fairbanks Morse #38TD8-1/8	1,000 kW
9	Diesel Electric Generator	EMD #20-645F4B	2,865 kW
11	Diesel Electric Generator	EMD #12-645E4	1,500 kW
12a	Diesel Electric Generator	Caterpillar #3616	3,660 kW
12b	Diesel Electric Generator	Same above Caterpillar unit	4,400 kW
14	Diesel Electric Generator	Caterpillar #3516B-LS	1,875 kW
1	Diesel fuel tank	storage tank	20,000 gallons
2	Diesel fuel tank	storage tank	20,000 gallons
15	Miscellaneous	Fugitive Emissions	N/A

Section 5. Source-Specific Requirements

Diesel Fired Internal Combustion Engines

Visible Emissions

3. The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source IDs 5 – 14 to reduce visibility through the exhaust effluent by greater than 20% for more than three minutes in any one hour.

Monitor, record, and report according to Section 13.

[18 AAC 50.055(a)(1), 1/18/97; 18 AAC 50.350(d), 6/21/98; & 18 AAC 50.350(g) – (i), 1/18/97]

Particulate Matter

4. The Permittee shall not cause or allow particulate matter emitted from Source IDs 5-14 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

Monitor, record, and report according to Section 13.

[18 AAC 50.055(b)(1), 1/18/97; 18 AAC 50.350(d), 6/21/98; & 18 AAC 50.350(g) – (i), 1/18/97]

Sulfur Compound Emissions

5. The Permittee shall not cause or allow sulfur compound emissions, expressed as SO₂, from Source IDs 5-14 to exceed 500 PPM averaged over three hours. For Source IDs 9, 11, 12a, or 12b, and 14, the sulfur content of fuel oil burned must not exceed 0.5 percent by weight at any time.

[18 AAC 50.055(c), 1/18/97; 18 AAC 50.350(d), 6/21/98]
[Condition 17 of Permit 9932-AC013, 12/28/99]

- 5.1 Compliance with this condition is assured by using a grade of fuel that limits sulfur content to less than 0.5 percent by weight, such as DF-1 or DF-2.
- 5.2 Obtain a statement or receipt from the fuel supplier certifying the grade of the fuel for each shipment of fuel delivered to the facility. If a certificate is not available from the supplier, analyze a representative sample of the fuel to determine the sulfur content using ASTM method D129-00, D1266-98, D1552-95, D2622-98, D4294-98, D4045-99, or an alternative method approved by the Department.
- 5.3 Report per condition 48 whenever you receive fuel that does not meet the requirements of condition 5. When reporting under this condition, include a material balance calculation of the sulfur compound emissions, in PPM, expected from this fuel, made in accordance with Section 15.

- 5.4 Include in the facility operating report required by condition 50 a list of the fuel grades received at the facility during the reporting period, and any reports required by condition 5.3.
- 5.5 Keep records of the sulfur contents of each shipment of fuel, each calculated three-hour SO₂ concentration, and all test results and calculations required under conditions 5.2, 5.3, or 5.4. Report copies of the records with the facility operating report required by condition 50.
- 5.6 Report per condition 48 if a three-hour exhaust concentration, calculated pursuant to condition 5.3, is greater than 500 PPM.

[18 AAC 50.350(g) - (i), 1/18/97]

Volatile Organic Liquid Storage Vessels

6. For Source IDs 1-2, the Permittee shall keep readily accessible records for the life of the tank showing the dimensions and an analysis showing the capacity of the storage vessel

[18 AAC 50.040(a)(2)(M), 7/2/00]

[Federal Citation: 40 C.F.R. 60.110b(c) & 40 C.F.R. 60.116b(a) - (b), 7/1/99]

[18 AAC 50.040(a)(1), 1/18/97]

[Federal Citation: 40 C.F.R. 60.11(d), 10/15/73]

[Condition 8 of Permit 9932-AC013, 12/28/99]

Burning Used Oil in Sources

Caution: Compliance with the requirements of the following conditions will ensure compliance with the applicable requirements of 18 AAC 50. This permit does not ensure compliance with other applicable state or federal laws concerning management, use, or disposal of used oil.

7. Until the Department approves a particulate matter source test demonstrating that burning the used oil will comply with the particulate matter emission standard of condition 4, the Permittee shall blend or co-fire any used oil with at least an equal volume of virgin fuel oil.
 - 7.1 Perform fuel blending or co-firing using a metering system or other reproducible method accurate to ± 5 percent.
 - 7.2 For blending, record the date, the quantity of used oil in gallons, and the quantity of virgin fuel oil in gallons added to the blend. For co-firing, record the date, the quantity of used oil fired, and the quantity of virgin oil fired at the same time.
 - 7.3 Report per condition 48 whenever used oil is not blended or co-fired as described above.
 - 7.4 Include in the facility operating report required by condition 50 the total amount of used oil burned in the period.

[18 AAC 50.055(b)(1), 6/21/98]
[18 AAC 50.350(g) – (i), 1/18/97]

8. The Permittee shall only burn used oil or a used oil/virgin fuel blend meeting the specifications in 8.3 unless the Department verifies in writing that burning the off-specification used oil will comply with 18 AAC 50.110. For off-specification used oil, the Department will, in its discretion, require the Permittee to provide information as necessary to verify compliance with 18 AAC 50.110.
- 8.1 Analyze a representative sample of each batch of used oil using SW-846 test methods for arsenic, lead, cadmium, chromium, total halogens, flash point, and polychlorinated biphenyls (PCBs), prior to blending with the virgin fuel oil.
- 8.2 If used oil does not meet the specification in condition 8.3, calculate and record the amount of virgin fuel oil required per gallon of used oil such that the blend will meet the specifications. Blend the used oil with at least the amount of virgin fuel oil determined in this condition. Record the information required under condition 7.2.
- 8.3 The used oil must meet the following specifications:
- a. Flash point greater than 100°F; and concentrations of
 - b. Polychlorinated Biphenyls (PCBs) no higher than 50 ppm,
 - c. Total Halogens no higher than 1000 ppm,*
 - d. Arsenic no higher than 5 ppm,
 - e. Cadmium no higher than 2 ppm,
 - f. Chromium no higher than 10 ppm, and
 - g. Lead no higher than 100 ppm
- [18 AAC 50.030, 1/18/97; & 18 AAC 50.110, 5/26/72]
- 8.4 Keep records of each analysis, measurement, and calculation required under conditions 8.1- 8.2.
- 8.5 Report per condition 48 whenever the used oil is not analyzed according to condition 8.1 and whenever a used oil blend is burned that does not meet the specification in condition 8.3.
- 8.6 Include in the facility operating report required by condition 50 the calculations recorded under condition 8.2.

[18 AAC 50.110, 5/26/72]
[18 AAC 50.350(g) – (i), 1/18/97]

Section 6. Facility-Wide Requirements

BACT Limits for Nitrogen Oxide Emissions

- 9.** Source IDs 5 and 6 shall not operate more than 4,400 hours each in any 12 consecutive month period.

[Condition 13.1 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 9.1 Monitor and record the hours of operation for each source, including the start-up and shut down times and dates. Calculate the 12-month rolling total hours of operation for each of Source IDs 5 and 6.

[Condition 13.2 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(g) & (h), 1/18/97]

- 9.2 Report in accordance with Condition 50 the 12 consecutive monthly hours of operation for Source IDs 5 and 6 for each of the past 6 months.

[Condition 13.3 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(i), 1/18/97]

- 9.3 Report in accordance with Condition 48 when the 12 consecutive monthly total hours of operation for Source IDs 5 or 6 exceed 4,400.

[18 AAC 50.350(i), 1/18/97]

- 10.** Limit NO_x emissions from the 2,865 kW EMD diesel electric generator, Source ID 9, to no greater than 101 lb/hr, expressed as NO₂, averaged over the duration of the emission performance test or any three consecutive hours.

[Condition 16.1 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 10.1 To comply with the above condition, operate Source No. 9 with no less than 2 degrees of fuel injection timing retard (fuel injection at 2 degrees before top dead center) and with a 4-pass aftercooler with separate cooling water supply.

[Condition 16.1 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 10.2 No later than July 31, 2000, conduct and report source tests for NO_x to ascertain compliance with the emission limit in Condition 10 in accordance with the requirements set forth in Section 10 of this permit. Determine the NO_x emission rate, expressed as NO₂, using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 10.

[Condition 16.1 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 10.3 No less than once per calendar year after 1999, verify compliance with the degree of fuel injection timing retard required by Condition 10 by providing the vendor documentation or facility maintenance logs. Submit documents or logs in the Facility Operating Report required by Condition 50.

[Condition 16.1 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(g), 1/18/97]

- 10.4 Report in accordance with Condition 48 when the NO_x emission expressed as NO₂ exceeds 303 lbs. in any three consecutive hour period.

[18 AAC 50.350(i), 1/18/97]

- 11.** Limit NO_x emissions from the 1,500 kW EMD diesel-electric generator, Source ID 11, to no greater than 61 lb/hr, expressed as NO₂, averaged over the duration of the emission performance test or any three consecutive hours.

[Condition 16.2 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 11.1 To comply with the above condition, operate Source No. 11 with no less than 2 degrees of fuel injection timing retard (fuel injection at 2 degrees before top dead center).

[Condition 16.2 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 11.2 No later than July 31, 2000, conduct and report source tests for NO_x to ascertain compliance with the emission limit in Condition 11 in accordance with the requirements set forth in Section 10 of this permit. Determine the NO_x emission rate, expressed as NO₂, using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 10.

[Condition 16.2 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 11.3 No less than once per calendar year after 1999, verify compliance with the degree of fuel injection timing retard required by Condition 11.1 by providing the vendor documentation or facility maintenance logs. Submit documents or logs in the Facility Operating Report required by Condition 50.

[Condition 16.2 of Permit 9932-AC013, 12/28/99 &
18 AAC 50.350(g) & (h), 1/18/97]

- 11.4 Report in accordance with Condition 48 when the NO_x emission expressed as NO₂ exceeds 183 lbs. in any three consecutive hour period.

[18 AAC 50.350(i), 1/18/97]

- 12.** Limit NO_x emissions from the 3,660 kW Caterpillar diesel electric generator, Source ID 12a to no greater than 188 lb/hr, expressed as NO₂, averaged over the duration of the emission performance test or any three consecutive hours.

[Condition 16.3 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 12.1 To comply with the above condition, operate Source No. 12a with no less than 2.5 degrees of fuel injection timing retard (fuel injection at 14.5 degrees before top dead center).

[Condition 16.3 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 12.2 No later than July 31, 2000, conduct and report source tests for NO_x to ascertain compliance with the emission limit in Condition 12 in accordance with the requirements set forth in Section 10 of this permit. Determine the NO_x emission rate, expressed as NO₂, using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 10.

[Condition 16.3 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 12.3 No less than once per calendar year after 1999, verify compliance with the degree of fuel injection timing retard required by Condition 12.1 by providing the vendor documentation or facility maintenance logs. Submit documents or logs in the Facility Operating Report required by Condition 50.

[Condition 16.3 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 12.4 Report in accordance with Condition 48 when the NO_x emission expressed as NO₂ exceeds 564 lbs. in any three consecutive hour period.

[18 AAC 50.350(i), 1/18/97]

- 13.** Limit NO_x emissions from the 4,400 kW Caterpillar diesel-electric generator, Source ID 12b to no greater than 203 lb/hr, expressed as NO₂, averaged over the duration of the emission performance test or any three consecutive hours.

[Condition 16.4 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 13.1 Operate Source 12b with no less than 4 degrees of fuel injection timing retard (fuel injection at 18 degrees before top dead center).

[Condition 16.4 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 13.2 Within 120 days after engine configuration changes to operate Source ID 12b at 4,400 kW, conduct and report source tests for NO_x to ascertain compliance with the emission limit in Condition 13 in accordance with the requirements set forth in Section 10 of this permit. Determine the NO_x emission rate, expressed as NO₂, using exhaust properties determined by both method 19 and exhaust gas measurements as set out in Section 8.

[Condition 16.4 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 13.3 No less than once per calendar year after modifying Source 12b to operate at 4,400 kW, verify compliance with the degree of fuel injection timing retard required by Condition 13.1 by providing the vendor documentation or facility maintenance logs. Submit documents or logs in the Facility Operating Report required by Condition 50.

[Condition 16.4 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 13.4 Report in accordance with Condition 48 when the NO_x emission expressed as NO₂ exceeds 609 lbs. in any three consecutive hour period.

[18 AAC 50.350(i), 1/18/97]

- 14.** Limit NO_x emissions from the 1,875 kW Caterpillar diesel electric generator, Source No. 14 to no greater than 43 lb/hr, expressed as NO₂, averaged over the duration of the emission performance test or any three consecutive hours.

[Condition 16.5 of Permit 9932-AC013, 12/28/99 & 18 AAC 50.350(e)(3), 1/18/97]

- 14.1 No later than July 31, 2000, conduct and report source tests for NO_x to ascertain compliance with the emission limit in Condition 14 in accordance with the requirements set forth in Section 10 of this permit. Determine the NO_x emission rate, expressed as NO₂, using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 10.

[Condition 16.5 of Permit 9932-AC013, 12/28/99, 18 AAC 50.350(e)(3), &]
18 AAC 50.350(h & i), 1/18/97]

- 14.2 Report in accordance with Condition 48 when the NO_x emission expressed as NO₂ exceeds 129 lbs. in any three consecutive hour period.

[18 AAC 50.350(i), 1/18/97]

Section 7. Compliance Plan and Schedule

15. Ambient Monitoring Requirements. The Permittee shall comply with the following requirements:

15.1 Operate, maintain, and calibrate at least one ambient air contaminant monitoring station to monitor SO₂ as follows:

- a. The station must be sited in a location for which the Department and Permittee agree would measure the maximum ambient concentration as predicted by the ambient concentration modeling performed by the applicant and the Department.
- b. Permittee has submitted to the Department for approval an ambient monitoring plan for Sulfur Dioxide (SO₂).
- c. Permittee must identify the monitoring site and rationale for site selection.
- d. Measure the ambient concentration of SO₂ for at least one year starting no less than 120 days after Department approval of the monitoring plan. Upon completion of the monitoring, the Permittee may request cancellation of monitoring provided the data exhibits compelling evidence that the ambient air standards for SO₂ are being met.
- e. Operate the station in accordance with the monitoring plan approved under Condition 15.1b.

[Conditions 14.2a, c & d. of Permit 9932-AC013, 12/28/99]
[18 AAC 50.350(k)(1 & 2), 1/18/97]

16. Submit a copy of the quarterly monitoring report within 60 days after the end of each calendar quarter. List all pollutant data collected, system downtime, periods for which collected data do not meet the data validation requirements, and periods for which the data is questionable. List equipment audit results during the quarter.

[Condition 14.2e of Permit 9932-AC013, 12/28/99]
[18 AAC 50.350(k)(3), 1/18/97]

17. Stack Parameter Requirements. The Permittee shall operate the Source IDs 9, 11, 12, and 14 with the following stack parameters:

17.1 Stack heights for Sources IDs 9 and 11, engine exhaust shall be no less than 50 feet, and for Source IDs 12 and 14, engine exhaust shall be no less than 40 feet above ground level;

17.2 Provide stacks for Source IDs 9, 11, 12, and 14 with:

- a. sampling ports that comport with 40 CFR 60, Appendix A, Method 1, Section 2.1, and a stack or duct free of cyclonic flow at the port location during applicable test methods and procedures;
- b. safe sampling platforms;
- c. safe access to sampling platforms; and
- d. utilities for emission sampling and testing equipment;

17.3 Submit to ADEC within 14 days after completion and no later than August 14, 2000, as-Built engineering drawings and photographs of stack parameters on Sources No. 9, 11, 12, and 14 to ensure compliance with Conditions 15.1 and 15.2.

[Conditions 15-15.3 of Permit 9932-AC013, 12/28/99 &]
Items 14b-14d Compliance order by Consent #99-057-50-1171 & 18 AAC 50.350(k)(1 & 2), 1/18/97]

18. Reconfigure Unit #9 to operate with a 4-pass aftercooler with separate cooling water supply by July 31, 2000;

18.1 Provide to ADEC vendor documentation or facility maintenance logs verifying aftercooler installation and changes to cooling water supply for Unit #9 within 14 days after reconfiguration and no later than August 14, 2000.

[Items 14g-14h Compliance order by Consent #99-057-50-1171 & 18 AAC 50.350(k)(1 & 2), 1/18/97]

19. Submit to ADEC a quarterly status report within 30 days after the close of each calendar quarter until completion, describing activities commenced, on-going, and completed pertaining to Conditions 17 through 18.

[Item 14i Compliance order by Consent #99-057-50-1171 & 18 AAC 50.350(k)(1 & 2), 1/18/97]

20. Within 30 days of receiving notification from the Department that information provided under conditions 17 through 19 is insufficient, the Permittee shall provide information to satisfy the Department's additional requirements.

[18 AAC 50.350(k)(2), 1/18/97]

21. The Permittee shall submit a progress report at least every six months from date of permit issuance, certified as required by 18 AAC 50.205, including

21.1 the dates and activities, milestones, or compliance required in the compliance plan and schedule and dates when those activities, milestones, or compliance were actually achieved; and

21.2 an explanation of why any activity, milestone, or compliance required by the compliance plan and schedule was not or will not be met and a description of any preventive or corrective measure adopted.

[18 AAC 50.350(k)(3), 1/18/97]

Section 8. Insignificant Sources

This section contains the requirements that the Permittee identified under 18 AAC 50.335(q)(2) as applicable to insignificant sources at the facility. This section also specifies the testing, monitoring, reporting, and recordkeeping for insignificant sources that the Department finds necessary to ensure compliance with the applicable requirements. Insignificant sources are not exempted from any air quality control requirement or federally enforceable requirement, except that the requirements of conditions 48 and 50 do not apply to this section.

As set out in 18 AAC 50.350(m), the shield of AS 46.14.290 does not apply to insignificant sources.

- 22.** The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from an industrial process, fuel-burning equipment, or an incinerator to reduce visibility through the exhaust effluent by greater than 20% for more than three minutes in any one hour.

[18 AAC 50.050(a)(2) & 18 AAC 50.055(a)(1), 1/18/97]

- 23.** The Permittee shall not cause or allow particulate matter emitted from an industrial process or fuel-burning equipment to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

[18 AAC 50.055(b)(1), 1/18/97]

- 24.** The Permittee shall not cause or allow sulfur compound emissions, expressed as SO₂, from an industrial process or fuel-burning equipment, to exceed 500 PPM averaged over three hours.

[18 AAC 50.055(c), 1/18/97]

- 25.** Based on reasonable inquiry, the Permittee shall certify compliance with the requirements specified in conditions 22, 23, and 24 as set out in condition 51.

[18 AAC 50.350(m)(3), 9/4/98]

Section 9. Generally Applicable Requirements

- 26. Asbestos NESHAP.** The Permittee shall comply with the requirements set forth in 40 C.F.R. 61.145, 61.150, and 61.152, and the applicable sections set forth in 40 C.F.R. 61, Subpart A and Appendix A.

[18 AAC 50.040(b)(3) & 18 AAC 50.350(d)(1), 1/18/97]
[Federal Citation: 40 C.F.R. 61, Subpart M, 12/19/96]

- 27. Refrigerant Recycling and Disposal.** The Permittee shall comply with the standards for recycling and emission reduction of refrigerants set forth in 40 C.F.R. 82, Subpart F.

[18 AAC 50.040(d) & 18 AAC 50.350(d)(1), 1/18/97]
[Federal Citation: 40 C.F.R. 82, Subpart F, 7/1/97]

- 28. Dilution.** The Permittee shall not dilute emissions with air to comply with this permit.

[18 AAC 50.045(a), 1/18/97]

28.1 Check all ductwork and exhaust systems for leaks, and repair any leaks found

- a. No sooner than 30 days prior to conducting a source test to demonstrate compliance with this permit,
- b. Once during the first six months of this permit and every 17,520 hours of source operation thereafter for sources subject to visible emission observations conducted pursuant to Section 14, or
- c. Once during the life of this permit for any other source regulated by this permit.

[18 AAC 50.350(g) & 18 AAC 50.350(f)(3), 1/18/97]

28.2 Keep records of all inspections and repairs performed under this condition.

[18 AAC 50.350(h) & 18 AAC 50.350(f)(3), 1/18/97]

28.3 Upon request of the Department, submit copies of the records.

[18 AAC 50.350(i) & 18 AAC 50.350(f)(3), 1/18/97]

- 29. Modification.** The Permittee shall not construct, operate, or modify a source that will result in a violation of the applicable emission standards or that will interfere with the attainment or maintenance of the ambient air quality standards or maximum allowable ambient concentrations.

[18 AAC 50.045(c) & 18 AAC 50.350(f)(3), 1/18/97]

29.1 Obtain all permits or permit revisions required for construction, modification, or operation under 18 AAC 50 and AS 46.14.

[18 AAC 50, Article 3, 1/18/97]

29.2 Comply with the conditions of all permits obtained under 18 AAC 50 and AS 46.14.

[18 AAC 50, Article 3, 1/18/97]

- 30. Bulk Materials Handling, Construction and Industrial Activities.** The Permittee shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air as a result of industrial activities, construction projects, or the handling, transportation, and storage of bulk materials.

[18 AAC 50.040(e), 18 AAC 50.045(d) & 18 AAC 50.350(d)(1), 1/18/97]

- 30.1 Keep records describing all precautions taken to prevent particulate matter from becoming airborne due to any of the activities described in this condition. If the precautions taken by the Permittee are not listed in the State Air Quality Control Plan, also record a statement describing why the Permittee finds the precaution reasonable. Reasonable precautions, as listed in the State Air Quality Control Plan, include

- a. installation and use of hoods, fans, and dust collectors to enclose and vent the handling of dusty materials;
- b. use of water or chemicals for dust control in the demolition of existing structures, construction operations, road grading, or land clearing; and
- c. application of asphalt, oil, water, or suitable chemicals on dirt roads, material stockpiles and other surfaces which can create airborne dusts.

[18 AAC 50.040(e) & 18 AAC 50.350(g) – (h), 1/18/97]

- 30.2 At least once each month, perform visual surveys of fugitive particulate matter sources as follows:

- a. Conduct a survey of all bulk materials handling, construction and industrial activities at the facility for the potential of airborne particulate matter in accordance with the procedures listed in 40 C.F.R. 60, Appendix A, RM 22
- b. Within 2 days of discovering that particulate matter emissions are leaving the property at a level which potentially could unreasonably interfere with the enjoyment of life or property, be injurious to human health or welfare, animal or plant life, or property, or cause an exceedance of a PM-10 ambient air quality standard or increment contained in 18 AAC 50.010(1) or 18 AAC 50.020(b)(2), initiate corrective actions to prevent emissions from leaving the property
- c. Keep contemporaneous records of all visual surveys performed and corrective actions taken to prevent particulate matter emissions from leaving the property. Submit summaries of the records with the facility operating report required by condition 50.

- d. Report per condition 48 whenever a visual survey reveals that particulate matter emissions at levels specified in condition 30.2b are leaving the property.

[18 AAC 50.350(g) – (i), 1/18/97]

- 31. Stack Injection.** The Permittee shall not release materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack at a source constructed or modified after November 1, 1982, unless approved in writing by the Department.

[18 AAC 50.055(g) & 18 AAC 50.310(m), 1/18/97]

- 32. Open Burning.** The Permittee shall comply with the following requirements when conducting open burning at the facility:

- 32.1 Open burning of asphalt, rubber products, plastics, tars, oils, oily wastes, contaminated oil cleanup materials, or other materials in a way that gives off black smoke is prohibited without written approval of the Department in accordance with the procedures set forth in 18 AAC 50.065.

[18 AAC 50.040(e), 18 AAC 50.065(b) & 18 AAC 50.350(d)(1), 1/18/97]

- 32.2 Open burning or incineration of pesticides, halogenated organic compounds, cyanic compounds, or polyurethane products in a way that gives off toxic or acidic gases or particulate matter is prohibited.

[18 AAC 50.040(e), 18 AAC 50.065(c) & 18 AAC 50.350(d)(1), 1/18/97]

- 32.3 Open burning of putrescible garbage, animal carcasses, or petroleum-based materials, including materials contaminated with petroleum or petroleum derivatives, is prohibited if it causes odor or black smoke that has an adverse effect on nearby persons or property.

[18 AAC 50.040(e), 18 AAC 50.065(d) & 18 AAC 50.350(d)(1), 1/18/97]

- 32.4 Open burning is prohibited in an area if the Department declares an air quality advisory under 18 AAC 50.245, stating that open burning is not permitted in that area for the day.

[18 AAC 50.040(e), 18 AAC 50.065(e) & 18 AAC 50.350(d)(1), 1/18/97]

- 32.5 When conducting open burning, the Permittee shall ensure that

- a. The material is kept as dry as possible through the use of cover or dry storage;
 - b. Before igniting the burn, noncombustibles are separated to the greatest extent practicable;
 - c. Natural or artificially-induced draft is present;
 - d. To the greatest extent practicable, combustibles are separated from grass or peat layer;

- e. Combustibles are not allowed to smolder; and
- f. Sufficient written records are kept to demonstrate that the Permittee complies with the limitations in this condition. Upon request of the Department, submit copies of the records.

[18 AAC 50.040(e), 18 AAC 50.065(a), 18 AAC 50.350(d)(1) & 18 AAC 50.335(g) – (h), 1/18/97]

- 33. Air Pollution Prohibited.** The Permittee shall not cause any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

[18 AAC 50.040(e), 1/18/97; 18 AAC 50.110, 5/26/72; & 18 AAC 50.350(d)(1), 1/18/97]

- 33.1 Within 24 hours of receiving a complaint that is attributable to emissions from the facility, investigate the complaint and initiate corrective actions to alleviate or eliminate the cause of the complaint.

[18 AAC 50.240(c) & 18 AAC 50.350(g), 1/18/97]

- 33.2 Keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for complaints attributable to emissions from the facility. Upon request of the Department, submit copies of the records.

[18 AAC 50.350(h) – (i), 1/18/97]

- 34. Technology-Based Emission Standard.** If an unavoidable emergency, malfunction, or non-routine repair, as defined in 18 AAC 50.235, causes emissions in excess of a technology-based emission standard listed in conditions 15 through 18, and 27, the Permittee shall take all reasonable steps to minimize levels of emissions that exceed the standard.

[18 AAC 50.235(a) & 18 AAC 50.350(f), 1/18/97]

- 35. Permit Renewal.** To renew this permit, the Permittee shall submit a complete application under 18 AAC 50.335 no sooner than **April 19, 2004**, and no later than **April 19, 2005**, to renew this permit.

[18 AAC 50.335(a), 1/18/97]

Section 10. General Source Testing and Monitoring Requirements

- 36. Requested Source Tests.** In addition to any source testing explicitly required by this permit, the Permittee shall conduct source testing as requested by the Department to determine compliance with applicable permit requirements.

[18 AAC 50.220(a), 18 AAC 50.345(a)(10), 1/18/97]

- 37. Operating Conditions.** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing

37.1 At a point or points that characterize the actual discharge to into the ambient air; and

37.2 At the maximum rated burning or operating capacity of the source or another rate determined by the Department to characterize the actual discharge into the ambient air.

[18 AAC 50.220(b) & 18 AAC 50.350(g), 1/18/97]

- 38. Reference Test Methods.** The Permittee shall use the following as reference test methods when conducting source testing for compliance with this permit:

38.1 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.

[18 AAC 50.040(a), 18 AAC 50.220(c)(1)(A) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 60, 7/1/97]

38.2 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 61.

[18 AAC 50.040(b), 18 AAC 50.220(c)(1)(B) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 61, 7/1/97]

38.3 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) must be conducted in accordance with the source test methods and procedures specified in 40 C.F.R. 63.

[18 AAC 50.040(c), 18 AAC 50.220(c)(1)(C) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 63, 7/1/97]

38.4 Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Section 14.

[18 AAC 50.030, 18 AAC 50.220(c)(1)(D) & 18 AAC 50.350(g), 1/18/97]

38.5 Source testing for emissions of particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified 40 C.F.R. 60, Appendix A.

[18 AAC 50.040(a)(4), 18 AAC 50.220(c)(1)(E) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 60, Appendix A, 7/1/97]

38.6 Source testing for emissions of PM-10 must be conducted in accordance with the procedures specified in 40 C.F.R. 51, Appendix M.

[18 AAC 50.035, 18 AAC 50.220(c)(1)(F) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 51, Appendix M, 7/1/97]

38.7 Source testing for emissions of any contaminant may be determined using an alternative method approved by the Department in accordance with Method 301 in Appendix A to 40 C.F.R. 63.

[18 AAC 50.040(c), 18 AAC 50.220(c)(2) & 18 AAC 50.350(g), 1/18/97]
[Federal Citation: 40 C.F.R. 63, Appendix A, Method 301, 7/1/97]

39. Excess Air Requirements. To determine compliance with this permit, standard exhaust gas volumes must only include the volume of gases formed from the theoretical combustion of fuel, plus the excess air volume normal for the specific source type, corrected to standard conditions (dry gas at 70° F and an absolute pressure of 760 millimeters of mercury).

[18 AAC 50.220(c)(3), 18 AAC 50.350(g) & 18 AAC 50.990(88), 1/18/97]

40. Test Plans. Before conducting any source tests, the Permittee shall submit a plan to the Department. The plan must include the methods and procedures to be used for sampling, testing, and quality assurance, and must specify how the source will operate during the test and how the Permittee will document this operation. A complete plan must be submitted within 60 days of receiving a request under condition 36 and at least 30 days before the scheduled date of any tests.

[18 AAC 50.345(a)(10), 18 AAC 50.350(b)(3) & 18 AAC 50.350(g), 1/18/97]

41. Test Notification. At least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and time the source test will begin.

[18 AAC 50.345(a)(10) & 18 AAC 50.350(b)(3), 1/18/97]

42. Test Reports. Within 45 days after completing a source test, the Permittee shall submit two copies of the results, to the extent practical, in the format set out in the *Source Test Report Outline* of Volume III, Section IV.3, of the State Air Quality Control Plan, adopted by reference in 18 AAC 50.030(8). The Permittee shall certify the results as set out in condition 44.

[18 AAC 50.345(a)(10), 18 AAC 50.350(b)(3) & 18 AAC 50.350(h) – (i), 1/18/97]

43. Particulate Matter Calculations. In source testing for compliance with the particulate matter standards in conditions 4 and 23, the three-hour average is determined using the

average of three one-hour test runs. The source testing must account for those emissions caused by soot blowing, grate cleaning, or other routine maintenance activities by ensuring that at least one test run includes the emissions caused by the routine maintenance activity and is conducted under conditions that lead to representative emissions from that activity. The emissions must be quantified using the following equation:

$$E = E_M \left[(A + B) \times \frac{S}{R \times A} \right] + E_{NM} \left[\frac{(R - S)}{R} - \frac{B \times S}{R \times A} \right]$$

Where:

- E= the total particulate matter emissions of the source in grains per dry standard cubic foot (gr./dscf)
- E_M= the particulate matter emissions in gr./dscf measured during the test that included the routine maintenance activity.
- E_{NM}= the arithmetic average of particulate emissions in gr./dscf measured during by the test runs that did not include the maintenance activity.
- A= the period of routine maintenance activity occurring during the test run that included routine maintenance activity, expressed to the nearest hundredth of an hour.
- B= the total period of the test run, less A.
- R= the maximum period of source operation per 24 hours, expressed to the nearest hundredth of an hour.
- S= the maximum period of routine maintenance activity per 24 hours, expressed to the nearest hundredth of an hour.

[18 AAC 50.220(f) & 18 AAC 50.350(g), 1/18/97]

Section 11. General Recordkeeping, Reporting, and Compliance Certification Requirements

- 44. Certification.** The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department under this permit by including the signature of a responsible official for the permitted facility following the statement: “Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.” For the same six-month reporting period, the excess emission and permit deviation reports submitted per condition 48 may be certified with the facility operating report required by condition 50. All other reports must be certified upon submittal.

[18 AAC 50.205, 18 AAC 50.345(a)(9), 18 AAC 50.350(b)(3) & 18 AAC 50.350(i) 1/18/97]

- 45. Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall send reports, compliance certifications, and other documents required by this permit to ADEC, Air Permits Program, 610 University Avenue, Fairbanks, AK 99709-3643, ATTN: Compliance Technician.

[18 AAC 50.350(i), 1/18/97]

- 46. Information Requests.** The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by this permit. The Department, in its discretion, will require the Permittee to furnish copies of those records directly to the federal administrator.

[18 AAC 50.200, 18 AAC 50.345(a)(8), 18 AAC 50.350(b)(3) & 18 AAC 50.350(g) – (i), 1/18/97]

- 47. Recordkeeping Requirements.** The Permittee shall keep all records required by this permit for at least five years after the date of collection, including

47.1 Copies of all reports and certifications submitted pursuant to this section of the permit.

47.2 Records of all monitoring required by this permit, and information about the monitoring including

- a. calibration and maintenance records, original strip chart or computer-based recordings for continuous monitoring instrumentation;
- b. sampling dates and times of sampling and measurements;
- c. the operating conditions that existed at the time of sampling or measurement;
- d. the date analyses were performed;

- e. the location where samples were taken;
- f. the company or entity that performed the sampling and analyses;
- g. the analytical techniques or methods used in the analyses; and
- h. the results of the analyses.

[18 AAC 50.350(h), 1/18/97]

- 48. Excess Emission and Permit Deviation Reports.** The Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit or that present a potential threat to human health or safety as soon as possible, but no later than 48 hours, after the event commences. The report must include the information listed on the form contained in Section 16. The Permittee may use this form to report emissions under this condition.

[18 AAC 50.235(a)(2), 18 AAC 50.240(c) & 18 AAC 50.350(i), 1/18/97]

- 49. NSPS and NESHAP Reports.** The Permittee shall submit to the Department copies of reports required by condition 26, as they apply to the facility as follows:

- 49.1 Attach a copy of any NSPS and NESHAPs reports submitted to the U.S. Environmental Protection Agency (EPA) Region 10 to the facility operating report required by condition 50.
- 49.2 The Permittee shall notify the Department of any EPA granted waivers of NSPS or NESHAPs emission standards, recordkeeping, monitoring, performance testing, or reporting requirements within 30 days after the Permittee receives a waiver.

[18 AAC 50.040 & 18 AAC 350(i)(2), 1/18/97]
[Federal Citation 40 C.F.R. 60 & 40 C.F.R. 61, 7/1/97]

- 50. Facility Operating Reports.** During the life of this permit, the Permittee shall submit an original and two copies of an operating report by August 1 for the period January 1 to June 30, and by February 1 for the period July 1 to December 31. Facility operating reports must include copies of the records required to be reported by the conditions of this permit. In addition, facility operating reports must include a listing of all excess emissions and permit deviations that occurred during the reporting period and must identify

- 50.1 the date of the deviation;
- 50.2 the equipment involved;
- 50.3 the permit condition;
- 50.4 a description of the deviation; and
- 50.5 any corrective action or preventive measures taken and the date of such actions.

[18 AAC 50.350(d)(4), 18 AAC 50.350(f)(3) & 18 AAC 50.350(i), 1/18/97]

51. Annual Compliance Certification. Each year by February 1, the Permittee shall compile and submit to the Department an original and two copies of an annual compliance certification report as follows:

51.1 For each permit term and condition set forth in Section 2 through Section 11, including terms and conditions for monitoring, reporting, and recordkeeping:

- a. certify the compliance status over the preceding calendar year consistent with the monitoring required by this permit;
- b. state whether compliance is intermittent or continuous; and
- c. briefly describe each method used to determine the compliance status.

51.2 Submit a copy of the report directly to the U.S. EPA-Region 10, Office of Air Quality, M/S OAQ-107, 1200 Sixth Avenue, Seattle, WA 98101.

[18 AAC 50.350(j), 1/18/97]

Section 12. Standard Conditions Not Otherwise Included in the Permit

- 52.** Consistent with Alaska law, for purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any standard in this permit, nothing in this permit precludes the use of any credible evidence or information relevant to whether the facility would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[18 AAC 50.350(f)(3), 1/18/97]

[Federal Citation: 40 C.F.R. 52.12(c), 7/1/99]

- 53.** The Permittee must comply with each permit term and condition. Noncompliance constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act, except for those requirements designated as not federally-enforceable, and is grounds for:

53.1 an enforcement action,

53.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280, or

53.3 denial of an operating-permit renewal application.

[18 AAC 50.345(a)(1) & 18 AAC 50.350(b)(3), 1/18/97]

- 54.** It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.

[18 AAC 50.345(a)(2) & 18 AAC 50.350(b)(3), 1/18/97]

- 55.** Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit.

[18 AAC 50.345(a)(3) & 18 AAC 50.350(b)(3), 1/18/97]

- 56.** Compliance with permit terms and conditions is considered to be compliance with those requirements that are:

56.1 included and specifically identified in the permit, or

56.2 determined in writing in the permit to be inapplicable.

[18 AAC 50.345(a)(4) & 18 AAC 50.350(b)(3), 1/18/97]

- 57.** The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any operating permit condition.

[18 AAC 50.345(a)(5) & 18 AAC 50.350(b)(3), 1/18/97]

58. The permit does not convey any property rights of any sort, nor any exclusive privilege.

[18 AAC 50.345(a)(6) & 18 AAC 50.350(b)(3), 1/18/97]

59. The Permittee shall allow an officer or employee of the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator, to:

59.1 enter upon the premises where a source subject to the operating permit is located or where records required by the permit are kept,

59.2 have access to and copy any records required by the permit,

59.3 inspect any facilities, equipment, practices, or operations regulated by or referenced in the permit, and

59.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

[18 AAC 50.345(a)(7) & 18 AAC 50.350(b)(3), 1/18/97]

Section 13. Visible Emissions and Particulate Matter Monitoring Plan

Visible Emissions Observations

60. Except as provided in conditions 61 and 62, the Permittee shall observe the exhaust of each source for visible emissions using either the visible-emission plan in condition 60.1 or the visible-emission plan in condition 60.2. The Permittee may change visible-emission plans for a source at any time.

60.1 Method-9 Plan. Within 6 months after the issue date of this permit or within 14 calendar days after changing from the Smoke/No-Smoke Plan (condition 60.2), whichever is later, and at least once every 1000 hours that a source operates thereafter, observe its exhaust for 60 minutes to obtain 240 individual 15-second opacity readings in accordance with Section 14; OR

60.2 Smoke/No-Smoke Plan. During each calendar day that a source operates, observe the exhaust for the presence or absence of visible emissions, excluding condensed water vapor. Record the following information in a written log for each observation and submit copies of the records upon request of the Department:

- a. The date and time of the observation;
- b. From TABLE 1 of this permit, the ID of the source observed;
- c. Whether visible emissions are present or absent in the exhaust;
- d. If the source starts operation on the day of the observation, the startup time of the source; and
- e. Name, title, and signature of the person making the observation.

61. The Permittee may reduce the number of 60-minute observations required by the Method-9 Plan (condition 60.1) to one observation for every 4380 hours of source operation, provided that

61.1 no more than 8 individual 15-second readings during each of the 60-minute observations conducted during 4000 hours of operation are greater than 20 percent opacity; AND

61.2 four or more 60-minute observations are conducted during the 4,000-hour period, at an interval of one observation each 1000 hours of observation or less.

- 62.** The Permittee may reduce the number of visible emission observations required by condition 60.2 to one observation for every 30 calendar days that a source operates if the source operates without visible emissions in the exhaust during the most recent 30 calendar days that the source operates.
- 63.** The Permittee is not required to comply with conditions 40, 41 and 42 (Test Plans, Test Notifications and Test Reports) when the exhaust is observed for visible emissions under conditions 60-62.

Corrective Actions Based on Visible Emissions Observations

- 64.** If visible emissions are present in the exhaust during an observation performed under condition 60.2, the Permittee shall
 - 64.1 Take actions to reduce visible emissions from the source within 24 hours of the observation;
 - 64.2 Keep a written record of the starting date, the completion date, and a description of the actions taken to reduce visible emissions; and
 - 64.3 After completing the actions taken to reduce visible emissions, observe the visible emissions in accordance with condition 60.2. If visible emissions are present in the exhaust during any of the next 30 observations, then observe the exhaust in accordance with condition 60.1 no later than 14 calendar days after the visible emissions are first observed or within 6 months after the issue date of this permit, whichever is later.

Particulate Matter Testing

- 65.** The Permittee shall conduct tests to determine the concentration of particulate matter in the exhaust of a source as follows:
 - 65.1 Conduct the tests according to the requirements set out in Section 10;
 - 65.2 During each test, observe visible emissions in accordance with Section 14 and calculate the average opacity that was measured during the test. Submit the results of the visible emission observations and the calculation with the source test report.
 - 65.3 Conduct the tests no later than 90 calendar days after any time a 60 minute visible emission observation performed under this section results in
 - a. 13 or more 15-seconds readings with an opacity greater than 20%; or
 - b. a six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches.

Reporting Requirements

- 66.** The Permittee shall, within 180 calendar days after the effective date of this permit, record and report the exhaust stack diameter of each Source IDs #5 through #14, and report this information to the Department with the first or second facility operating report required by condition 50.
- 67.** The Permittee shall keep a record of the operating hours for each Source IDs #5 through #14, and submit these records with the facility operating report required by condition 50.
- 68.** The Permittee shall notify the Department in each facility operating report required by condition 50 which visible-emission plan in condition 60 was used for each source. The Permittee shall also submit with the facility operating report copies of the observation results for each source that used the Method-9 Plan (condition 60.1). The Permittee shall also indicate in the facility operating report the number of calendar days that smoke was observed for each source that used the Smoke/No-Smoke Plan (condition 60.2).
- 69.** Report per condition 48 if:
- 69.1 a 60-minute visible emission observation results in
- a. 13 or more 15-seconds readings with an opacity greater than 20%;
 - b. a six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches; or
- 69.2 the results of a test for particulate matter exceed the particulate matter emission limit.

[18 AAC 50.350(g) – (i), 1/18/97]

Section 14. Visible Emission Evaluation Procedures

An observer qualified according to 40 C.F.R. 60, RM 9 shall use the following procedures to determine the reduction of visibility through the exhaust effluent.

Position. The qualified observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his observations from a position such that his line of vision is approximately perpendicular to the plume direction and, when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case the observer should make his observations with his line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses). The observer shall maintain a distance of at least 15 feet from the emission point.

Field Records. The observer shall record the name of the plant, emission location, facility type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on the sheet at the time opacity readings are initiated and completed.

Observations. Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume but instead shall observe the plume momentarily at 15-second intervals. Unless directed to do otherwise in this permit, observe emissions for 60 consecutive minutes to obtain a minimum of 240 observations.

Attached Steam Plumes. When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

Detached Steam Plume. When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

Recording Observations. Opacity observations shall be recorded to the nearest 5 percent at 15-second intervals on the Visible Emissions Observation Record contained in this section. Record the minimum number of observations required by the permit. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

Data Reduction. To determine compliance with a standard set out in conditions 3 - 22, count the number of observations that exceed 20 percent opacity and record this number on the sheet.

Visible Emissions Field Data Sheet

Certified Observer: _____

Company: _____

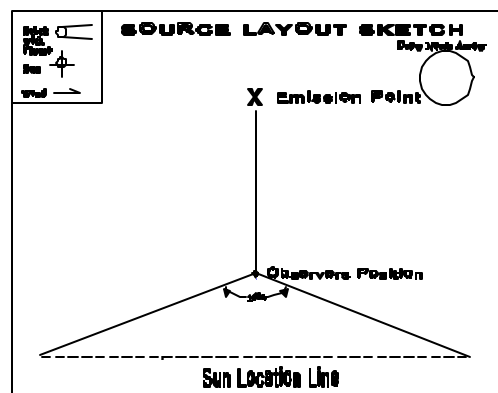
Location: _____

Test No.: _____ Date: _____

Source: _____

Production Rate, Operating Rate &
Unit Operating Hours: _____

Hrs. of observation: _____



Clock Time	Initial				Final
Observer location					
Distance to discharge					
Direction from discharge					
Height of observer point					
Background description					
Weather conditions					
Wind Direction					
Wind speed					
Ambient Temperature					
Relative humidity					
Sky conditions: (clear, overcast, % clouds, etc.)					
Plume description:					
Color					
Distance visible					
Water droplet plume? (Attached or detached?)					
Other information					

Visible Emissions Observation Record

Page ____ of ____

Company _____ Certified Observer _____

Test Number _____ Clock time _____

[illegible]

Additional information:

Observer Signature _____

Data Reduction:

Duration of Observation Period (minutes) _____

Number of Observations _____

Number of Observations exceeding 20% _____

Average Opacity Summary

Set Number	Time Start—End	Opacity	
		Sum	Average

Section 15. Material Balance Calculation

If the sulfur content of a fuel shipment is greater than 0.5% by weight, calculate the three-hour exhaust concentration of SO₂ using the following equations:

$$A = 31,200 \times [\text{wt}\%S_{\text{fuel}}] = 31,200 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$B = 0.148 \times [\text{wt}\%S_{\text{fuel}}] = 0.148 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$C = 0.396 \times [\text{wt}\%C_{\text{fuel}}] = 0.396 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$D = 0.933 \times [\text{wt}\%H_{\text{fuel}}] = 0.933 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$E = B + C + D = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$F = 21 - [\text{vol}\%_{\text{dry}}O_{2,\text{exhaust}}] = 21 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$G = [\text{vol}\%_{\text{dry}}O_{2,\text{exhaust}}] \div F = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$H = 1 + G = 1 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$I = E \times H = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\text{SO}_2 \text{ concentration} = A \div I = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ PPM}$$

The **wt%*S*_{fuel}**, **wt%*C*_{fuel}**, and **wt%*H*_{fuel}** are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent (wt%) of sulfur is obtained pursuant to condition 5.2. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (**vol%*O*_{2,exhaust}**) is obtained from oxygen meters, manufacturer's data, or from the most recent ORSAT analysis at the same engine load used in the calculation.

Enter all of the data in percentages without dividing the percentages by 100. For example, if **wt%*S*_{fuel}** = 1.0%, then enter 1.0 into the equations not 0.01 and if **vol%*O*_{2,exhaust}** = 3.00%, then enter 3.00, not 0.03.

[18 AAC 50.350(g), 1/18/97]

Section 16. ADEC Notification Form

Fax this form to: (907) 269-7508 Telephone: (907) 269-8888

Nome Joint Utility System

Company Name

Snake River Power Plant

Facility Name

1. Reason for notification:☐ **Excess Emission**☐ **Permit Condition Exceedence****2. Event Information (Use 24-hour clock):**

	START Time: (hr:min):	END Time:	Duration
Date: _____	_____	_____	_____
Date: _____	_____	_____	_____
	Total:	_____	_____

3. Cause of Event (Check all that apply):☐ START UP☐ UPSET CONDITION☐ CONTROL EQUIPMENT☐ SHUT DOWN☐ SCHEDULED MAINTENANCE☐ OTHER _____

Attach a detailed description of what happened, including the parameters or operating conditions exceeded.

4. Sources Involved:

Identify each Emission Source involved in the event, using the same identification number and name as in the Permit. List any Control Device or Monitoring System affected by the event. Attach additional sheets as necessary.

Source ID No.	Source Name	Description	Control Device
_____	_____	_____	_____
_____	_____	_____	_____

5. Emission Limit and/or Permit Condition Exceeded:

Identify each Emission Standard and Permit Condition exceeded during the event. Attach a list of ALL known or suspected injuries or health impacts. Attach additional sheets as necessary.

Permit Condition	Limit	Exceedence
_____	_____	_____
_____	_____	_____

6. Emission Reduction:

Attach a detailed description of ALL of the measures taken to minimize and/or control emissions during the event.

7. Corrective Actions:

Attach a detailed description of ALL corrective actions taken to restore the system to normal operation.

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name: _____

Signature: _____

Date: _____

Alaska Department of Environmental Conservation

Air Permits Program

October 20, 2000

Administrative Revision December 13, 2002

Nome Joint Utilities System

Snake River Power Plant

LEGAL AND FACTUAL BASIS

of the terms and conditions for

Permit No. 210TVP01

Prepared by Jack Coutts

INTRODUCTION

This document sets forth the legal and factual basis for the terms and conditions of Operating Permit No. 210TVP01.

The Snake River Power Plant is a Diesel electric power plant that provides electric power to the City of Nome, Alaska. The facility is owned by the City of Nome and operated by Nome Joint Utility System. Nome Joint Utility System is the Permittee for the facility's operating permit.

PROCESS DESCRIPTION

As provided in the application, the facility contains 6 large diesel electric generators ranging from 1000 kW to 4,400 kW. And two 20,000 gallon fuel tanks. The installation dates for each diesel electric generator are listed in the Compliance History section below.

The sources at the facility regulated in Operating Permit 210TVP01 are identified in TABLE 1 in Section 4 of the permit

SOURCE INVENTORY AND DESCRIPTION

Section 4 of Operating Permit No. 210TVP01 contains TABLE 1 describing the sources regulated by the permit. The table is provided for information and identification purposes only. Specifically, the source rating/size provided in the table is not intended to create an enforceable limit.

BASIS FOR REQUIRING AN OPERATING PERMIT

Snake River Power Plant requires an operating permit because it has the potential to emit 100 tons per year (tpy) or more of a regulated air contaminant. Snake River Power Plant meets the definition of operating permit facility in the state regulations at Section 2. Snake River Power Plant is also a Prevention of Significant Deterioration (PSD) Major Facility as defined in 18 AAC 50.300(c)(1) because it has the potential to emit more than 250 tpy of a regulated air contaminant in an area classified as attainment or unclassifiable. The Snake River Power Plant has undergone a PSD review because the facility was modified after August 8, 1980, to exceed the PSD trigger levels in 18 AAC 50.300(h)(3)(B).

Alaska regulations require operating permit applications to include identification of "regulated sources." As applied to Snake River Power Plant, the state regulations require a description of:

Each incinerator, including a demonstration showing each requirement in 18 AAC 50.050, Incinerator Emissions Standards, that applies [18 AAC 50.335(e)(4)(A)];

Each source regulated by a standard in 18 AAC 50.055, Industrial Processes and Fuel Burning Equipment [18 AAC 50.335(e)(4)(C)];

Each source subject to a standard adopted by reference in 18 AAC 50.040 [18 AAC 50.335(e)(2)]; and

Sources subject to requirements in an existing DEC permit [18 AAC 50.335(e)(5)]

The emission sources at Snake River Power Plant classified as “regulated sources” according to the above DEC regulations are listed in TABLE 1 of Permit No. 210TVP01.

CURRENT AIR QUALITY PERMITS

Construction Permits

Construction Permit Number 9932-AC013 was issued to this facility on December 28, 1999. The facility-specific requirements established in this construction permit are included in the new operating permit as described below.

Permit Application History

The owner or operator submitted an application on December 4, 1997.

The owner or operator amended this application on December 28, 1998.

The application was determined complete on February 25, 1999.

Additional information was received when the application modified on March 26, 1999.

COMPLIANCE HISTORY

The FACILITY consists of ten diesel engines used to provide electricity for the City of Nome. The identification number, rating, installation and removal date, if applicable, of each engine is as follows: Unit #1 (600-kw Cooper-Bessemer #JS6T, installed 1963 and removed in 1998); Unit #2 (600 kw Cooper-Bessemer #JS6T, installed 1963 and removed in 1993); Unit #3 (600 kw Cooper-Bessemer #JS6T, installed 1957 and removed in 1991); Unit #4 (300 kw GMC#6-278A, installed 1976 and removed in 1983); Unit #5 (1200 kw Cooper-Bessemer, installed 1974); Unit #6 (1000 kw Fairbanks Morse #38TD8-1/8, installed 1976); Unit #9 (2850 kw EMD #20-645F4B, installed 1985); Unit #11 (1500 kw EMD #12-645E4, installed 1989); Unit #12 (3660 kw Caterpillar #3616, installed 1991); and Unit #14 (1875 kw Caterpillar, installed 1998).

The Nome Joint Utilities System installed and operated Units #9, #11, #12 and #14 (# is the same as ID) in a manner that resulted in “modifications” to the FACILITY as that term is defined in AS 46.14 and 18 AAC 50.

In 1985, the Nome Joint Utilities System failed to obtain a permit prior to installing and operating Unit #9, as required by 18 AAC 50.300.

In 1989, the Nome Joint Utilities System failed to obtain a permit prior to installing and operating Unit #11, as required by 18 AAC 50.300.

In 1991, the Nome Joint Utilities System failed to obtain a permit prior to installing and operating Unit #12, as required by 18 AAC 50.300.

In 1998, the Nome Joint Utilities System failed to obtain a permit prior to installing and operating Unit #14, as required by 18 AAC 50.310.

Permit No. 210TVP01 has a section entitled Compliance Plan and Schedule, which the above noncompliance issues.

FACILITY-SPECIFIC REQUIREMENTS CARRIED FORWARD

18 AAC 50.350(d)(1)(D) requires that this permit include each facility specific requirement established in prior Permit 9932-AC013. Table 1 below lists the old requirement (condition) and the new condition that carries over the old requirement into the new permit.

Table 1. A comparison of pre-January 18, 1997, Permit No. 9932-AC013 conditions to Permit No. 210TVP01 conditions.

Permit No. 9932-AC013 condition	Description of Requirement	Permit No. 210TVP01 condition	How condition was revised
1-8	Standard Conditions	36, 40-42, and 52-59	Not revised.
9	General Description	Page 1 and Section 2	Ambient concentration not mentioned since this is an operating, not construction permit.
10 & 11	Notification requirement and procedure.	Section 11	More comprehensive.
12	Sulfur Dioxide Requirements	5	Not revised.
13	Nitrogen Oxide Requirements	9	Not revised.
14 through 14.2b	Ambient modeling monitoring plan Requirements	None since Plan has been submitted	Not carried over since satisfied.
14.2c-14.2e	Ambient modeling monitoring plan Requirements	15& 16	Not revised.

Permit No. 9932-AC013 condition	Description of Requirement	Permit No. 210TVP01 condition	How condition was revised
15-15.3	Stack Parameter Requirements	17	Not revised.
16	BACT for NO _x	10-14	Not revised.
17	BACT for SO ₂	5	Not revised.
18-20	NSPS reporting	None	Nothing required.
21-22	NSPS subpart Kb	7	Not revised.
23.1	Opacity limits	3	Not revised.
23.2	PM limits	4	Not revised.
23.3	SO ₂ limits	5	Not revised.
24	Air Pollution Prohibited	33	Not revised.
25	Dilution	28	Slightly reworded.
26	Good Air Pollution Control Practice	None	Deleted. DEC lacks clear authority for this condition.
27	Modification	29	Slightly reworded.
28	Reference Test Methods	38	Slightly reworded.
29	Test Plans	40	Slightly reworded.
30	Test Notification	41	Slightly reworded.
31	Test Reports	42	Slightly reworded.
32	Operating Conditions	37	Slightly reworded.
33	Excess Air	39	Slightly reworded.
34	Continuous Monitoring Systems (CEM)	None	No CEM requirement in either permit.
35	Facility Operating Report	50	Slightly reworded.
36	Excess Emission Reports	48	Slightly reworded.
37	BACT Reanalysis	None	Construction specific
38	Submittals	45	Not revised.
39	Information Requests	46	Not revised.
40	Recordkeeping Requirements	47	Not revised.
41	Certification	44	Slightly reworded.

LEGAL AND FACTUAL BASIS FOR THE PERMIT CONDITIONS

Conditions 1 - 2

Legal Basis: [18 AAC 50.350(c) & 18 AAC 50.400 – 420, 1/18/97]

The regulations require all permits to include due dates for the payment of fees and any method the Permittee may use to re-compute assessable emissions.

Factual Basis: These conditions require the Permittee to pay fees in accordance with the Department's billing regulations. The Department's billing regulations set the due dates for payment of fees based on the billing date.

The conditions also set forth how the Permittee may recompute assessable emissions. If the Permittee does not choose to annually calculate assessable emissions, emissions fees may be paid based on "potential to emit."

The potential to emit for sulfur dioxide is based upon a 0.5% fuel sulfur limit as allowed in the permit.

The emissions are summarized in Table 2 below.

EMISSIONS

Table 2. Emissions Summary

Pollutant	NO _x	CO	PM	SO ₂	VOC	HAP
Potential Emissions (TPY) per AS 46.14.990(21)	1321	92	68	224	6.2	2.2
Assessable Potential to Emit (TPY) per Condition 2.2	1321	92	68	224	0	0
1996 Actual Estimated Emissions (TPY)	559	22	6	66	1.8	<1

The potential emissions of the above pollutants except VOC and HAP were determined by permittee from manufacturer's supplied emission factors. The HAP emission factors were obtained by permittee from AP-42, 5th edition, pages 3.1-8 and 3.3-4. The VOC emissions were computed from the HC/SO_x emission ratio (taken from the applicants 1996 estimated actual emissions) and the potential SO₂ emission. Sources ID 5 & 6 are on emergency backup duty only so their potential emissions were assumed to be zero.

The assessable potential to emit is simply those regulated air contaminants for which the facility has the potential to emit quantities greater than 10 tons per year.

The estimated 1996 actual emissions were obtained from Attachment A in the application.

In most cases the emission factors were stated to only two significant figures so the TPY should be considered to be no more accurate than two significant figures.

Condition 3

Legal Basis: [18 AAC 50.055(a)(1), 1/18/97]
[18 AAC 50.350(d), 6/21/98]
[18 AAC 50.350(g) – (i), 1/18/97]

Diesel engines are fuel-burning equipment. This regulation applies to operation of all fuel-burning equipment in Alaska.

Factual Basis: The condition cites the state visible emission standard applicable to fuel-burning equipment. The Permittee shall not cause or allow the diesel engines to violate this standard.

The monitoring, recordkeeping, and reporting requirements are listed in Section 13 of the permit. The requirements for the visible emission and particulate matter standards are combined in this section.

There are two options for monitoring visible emissions. One option requires the Permittee to observe visible emissions in accordance with the state reference test method. The other option requires the Permittee to momentarily observe the exhaust for presence or absence of visible emissions. This latter option takes into account the difficulty and expense of getting certified readers to remote locations in Alaska.

Under the latter option, all sources are initially observed for the presence or absence of visible emissions in the exhaust for 30 operating days. Visible emissions are presumed to be absent if the exhaust exhibits less than 5 percent opacity. The Department believes the initial thirty days is sufficient to capture all operating modes and to assure the monitoring determines if the engine complies with the visible emission standard. If visible emissions are absent during the 30 operating days, the monitoring frequency is relaxed to one observation for every 30 days of source operation. The Department believes monthly checks are sufficient to monitor for the presence of increased visible emissions that may result from degradation of an engine.

If the Permittee observes smoke in the exhaust during the initial 30 operating days or during a monthly check, the Permittee must take action to reduce visible emissions from the source within 72 hours of the observation. After completing the action, the Permittee continues to observe the exhaust for the presence or absence of visible emissions for another 30 operating days. If smoke is observed during this 30-day period, the Permittee must observe visible emissions using the state reference test method within 14 days after the visible emissions are observed.

The recordkeeping requirements consist of keeping records of the results of all visible emission observations and records of any actions taken to reduce visible emissions. The Permittee must report copies of the results of all observations done using the state reference

test method with operating reports. The Permittee must report emissions in excess of the state visible emission standard.

Condition 4

Legal Basis: [18 AAC 50.055(b)(1), 1/18/97]
[18 AAC 50.350(d), 6/21/98]
[18 AAC 50.350(g) – (i), 1/18/97]

Diesel engines are fuel-burning equipment. This regulation applies to operation of all fuel-burning equipment in the State of Alaska.

Factual Basis: The condition cites the state particulate-matter emission standard applicable to fuel-burning equipment. The Permittee shall not cause or allow diesel engines to violate this standard.

The monitoring, recordkeeping, and reporting requirements are listed in Section 13 of the permit. The requirements for the visible emission and particulate matter standards are combined in this section.

The requirement to test for particulate matter to determine compliance with the standard is triggered by the results of observations conducted in accordance with the state reference test method. The Permittee is required to conduct tests if the results of an observation show noncompliance with visible emission standard or the average opacity indicates noncompliance with the particulate matter standard.

The Department is not requiring initial tests to show compliance with the particulate matter standards. Based on manufacturers' data, the Department believes that most new diesel engines comply with the particulate matter standard¹. Also, there are opacity-particulate correlations² that show emissions from diesel engines commonly used in Alaska will meet the state standard of 0.05 grains per dry standard cubic foot if the average opacity in the exhaust is less than 20 percent. The Department believes this is sufficient justification to not require initial compliance testing since the Permittee certified compliance with the visible emission standard in the application. However, the Department is requiring testing if the Permittee observes visible emissions greater than the state standard.

In a general operating permit for diesel engines, the Department required source tests for particulate matter when the average opacity of a visible emission observation exceeded twelve percent. Since that time, the Department has uncovered additional test data and literature that supports a statement that diesel engines will meet the 0.05 grain loading standard when the average opacity is less than twelve percent, provided that the exhaust outlet diameter (path length for opacity observations) exceeds 21 inches. Testing conducted at both an Alaskan power plant and an Hawaiian utility confirm that compliance with the 20 percent opacity standard will insure compliance with the 0.05 gr./dscf particulate standard, provided that the exhaust outlet is 21 inches or larger. This test data closely agrees

¹ See attached data

² See attached graph

with values obtained using the smoke density calculator at <http://www.dieselnet.com/calculator/index.html>. The calculator is based on the report, *Particulate Matter Measurements*, DieselNet Technology Guide, Revision 1997.12. Based on this new information, the Department is requiring testing if the Permittee observes visible emissions greater than 12%, expressed as a six-minute average and the stack diameter if the source is less than 21 inches. The Department is also requiring the Permittee to measure visible emissions during a source test and to calculate the average opacity during the test. The Permittee must report copies of all source test reports and emissions in excess of the particulate matter standard.

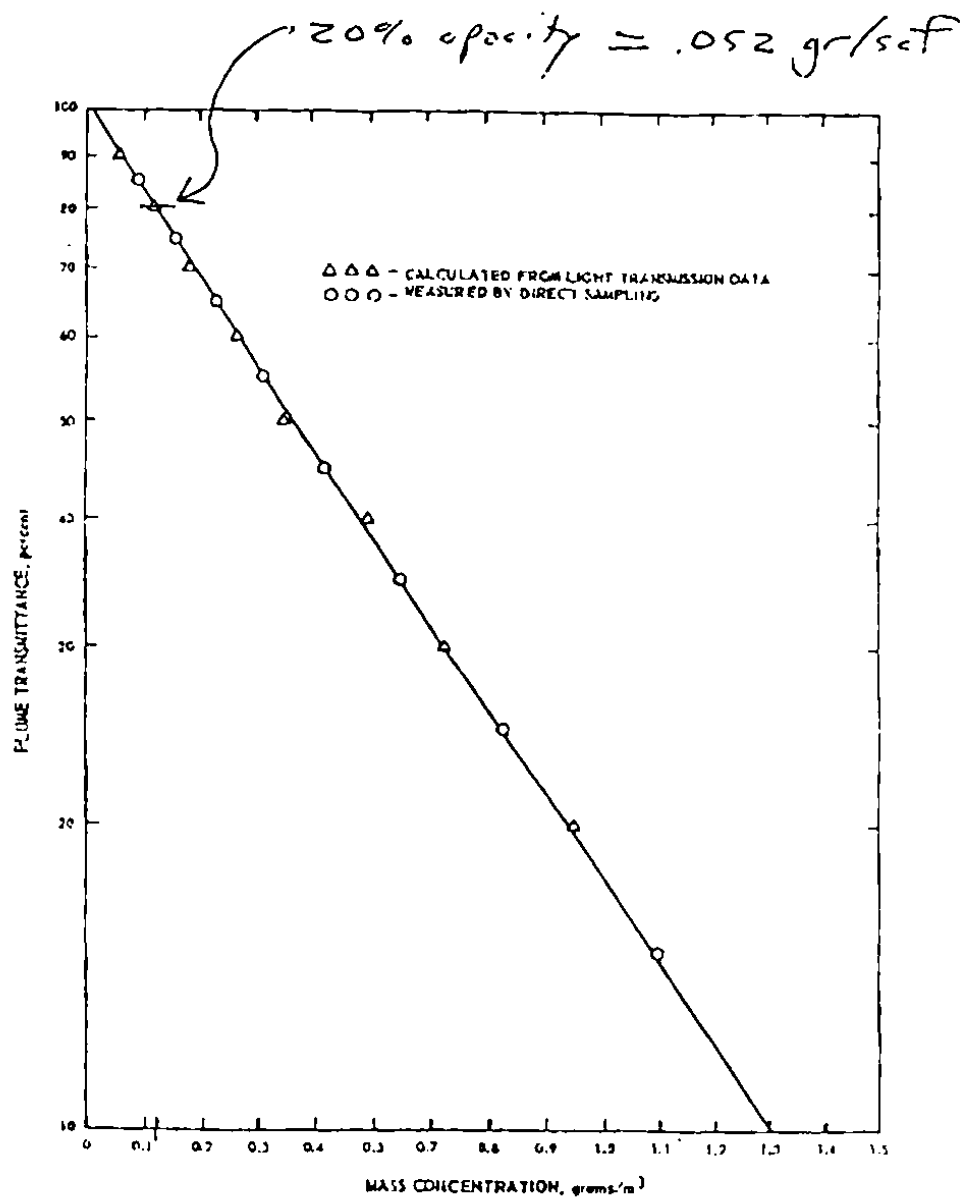


Figure 32. Mass concentration of black plume as calculated from transmittance and measured by direct sampling.

OPTICAL PROPERTIES AND VISUAL EFFECTS

		rpm	Test Capacity kW	Capacity kW	bhp	dscd	asfm	% moisture	Fahrenheit Gas temp.	%O2	gmKw-hr	gm/kwh	p/assl
F02.02% S CAT	D398 JWAC				939	1969	5229 not avail.		890		0.09 n/a		0.008 From vendor
F02.02% S CAT	3412 DTTA		360	360	463	930	2161 not avail.		1203 n/a		0.08 n/a		0.008 From vendor
F02.02% S CAT	3516		1135	1135	1586	3261	9189		817 n/a		0.24 n/a		0.021 From vendor
F02.02% S CAT	3512		855	855	1205.7	2114	6003 not avail.		822 n/a		0.165 n/a		0.017 From vendor
F01.4.2 CAT	3516		1450	1200	n/a	3941.3	11228.4	6.82	874.5	10.5	n/a		0.031 METHOD 5
F01.4.2 CAT	3516		1450	1200	n/a	3927.5	11170.1	6.69	875.5	10.5	n/a		0.028 METHOD 5
F01.4.2 CAT	3518		1450	1200	n/a	3869.8	10893.3	6.64	877.7	10.3	n/a		0.030 METHOD 5
F02.02% S CAT	3606	900	1730	1730	2320	4644	13002 not avail.		817	15	0.15 n/a		0.012 From vendor
F02.02% S CAT	3608	800	2300	2300	3084	5990	16744 not avail.		811	15	0.29 n/a		0.023 From vendor
F02.02% S CAT	3608	1000	2460	2460	3299	6886	19282 not avail.		795	15	0.24 n/a		0.018 From vendor
F02.02% S CAT	3812	900	3460	3460	4640	8288	26005 not avail.		817	15	0.15 n/a		0.012 From vendor
F02.02% S CAT	3612	1000	3700	3700	4962	10143	28393 not avail.		836	15	0.26 n/a		0.021 From vendor
F02.02% S CAT	3618	900	4600	4600	6169	11966	33469 not avail.		811	15	0.39 n/a		0.028 From vendor
F02.02% S CAT	3618	1000	4920	4920	6588	13774	38566 not avail.		795	15	0.24 n/a		0.01862 From vendor
F02	Allis Cope 12 cyclinder	7	-600	-600	800	1548	3232	7.7	548	13.2 n/a	n/a		0.00662 METHOD 5
F02	Allis Cope 12 cyclinder	7	-600	-600	800	1522	3156	7.1	547	13.1 n/a	n/a		0.00815 METHOD 5
F02	Allis Cope 12 cyclinder	7	-600	-600	800	1534	3205	7.1	555	13.1 n/a	n/a		0.013 METHOD 5
F02	Allis Cope B cyclinder	7	-375	-375	500	1022	2025	7.6	497	13.2 n/a	n/a		0.018 METHOD 5
F02	Allis Cope B cyclinder	7	-375	-375	500	1062	2084	8.9	495	13.2 n/a	n/a		0.020 METHOD 5
F02	Allis Cope B cyclinder	7	-375	-375	500	1110	2159	6.9	488	13.5 n/a	n/a		0.018 METHOD 5
F01.4.2 Flusion	12RKC		2200	1850	2500	6497.5	18612.0	6.43	760.4	11.0 n/a	n/a		0.025 METHOD 5
F01.4.2 Flusion	12RKC		2200	1850	2500	6492.8	16383.6	6.35	744.4	11.1 n/a	n/a		0.022 METHOD 5
F01.4.2 Flusion	12RKC		2200	1850	2500	6584.7	16572.5	6.31	747.0	11.0 n/a	n/a		0.021 METHOD 5
F02.02% S CAT	3116DTA A	2400	201.15 not avail.	150 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.022 From vendor
F02.02% S CAT	3116DTA A	2400	254.79 not avail.	190 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.038 From vendor
F02.02% S CAT	3116DTA B	2400	268.2 not avail.	200 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.037 From vendor
F02.02% S CAT	3116DTA B	2400	221.255 not avail.	165 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.029 From vendor
F02.02% S CAT	3116DTA C	2300	268.2 not avail.	200 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.030 From vendor
F02.02% S CAT	3116DTA C	2200	261.495 not avail.	195 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.16		0.028 From vendor
F02.02% S CAT	3116DTA C	2100	248.055 not avail.	185 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.15		0.028 From vendor
F02.02% S CAT	3116DTA C	2000	241.38 not avail.	180 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.15		0.026 From vendor
F02.02% S CAT	3116DTA C	2500	241.38 not avail.	175 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.32		0.057 From vendor
F02.02% S CAT	3116DTA C	2400	234.675 not avail.	160 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.053 From vendor
F02.02% S CAT	3116DTA C	2200	214.55 not avail.	160 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.26		0.036 From vendor
F02.02% S CAT	3116DTA C	2100	201.15 not avail.	150 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.27		0.044 From vendor
F02.02% S CAT	3116DTA C	2000	194.445 not avail.	145 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.29		0.052 From vendor
F02.02% S CAT	3116DTA C	1950	201.15 not avail.	150 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.30		0.057 From vendor
F02.02% S CAT	3116DTA C	1800	201.15 not avail.	140 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.014 From vendor
F02.02% S CAT	3116DTA C	1800	241.38 not avail.	180 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.025 From vendor
F02.02% S CAT	3116DTA C	2400	187.71 not avail.	140 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.031 From vendor
F02.02% S CAT	3116DTA C	2400	201.15 not avail.	150 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.034 From vendor
F02.02% S CAT	3116DTA C	2400	207.855 not avail.	155 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.23		0.030 From vendor
F02.02% S CAT	3116DTA C	2300	201.15 not avail.	150 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.24		0.034 From vendor
F02.02% S CAT	3116DTA C	2200	194.445 not avail.	145 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.26		0.037 From vendor
F02.02% S CAT	3116DTA C	2100	181.035 not avail.	135 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.033 From vendor
F02.02% S CAT	3116DTA C	2000	174.33 not avail.	130 not avail.	not avail.	not avail.	not avail.	not avail.	not avail.	5	0.22		0.030 From vendor
A/B Continuous													
C Intermittent													

Conditions 5

Legal Basis: [18 AAC 50.055(c), 1/18/97]
[18 AAC 50.350(d), 6/21/98]
[Condition 17 of Permit 9932-AC013, 12/28/99]

The conditions apply to diesel engines because the engines are fuel-burning equipment.

Factual Basis: Condition 6 re-iterates a sulfur emission standard applicable to fuel-burning equipment. The Permittee may not cause or allow their equipment to violate this standard. The fuel sulfur content limit for some sources is from a BACT requirement in Permit 9932-AC013.

Sulfur dioxide comes from the sulfur in the liquid, hydrocarbon fuel (e.g. diesel or No. 2 fuel oil). Attachment 1 of this document provides the proof of the stoichiometric, mass-balance equations to calculate sulfur-dioxide concentration of the exhaust gas from the combustion of fuel with ambient air. According to these equations, fuel containing no more than 0.5% sulfur by weight will always comply with the emission standard. For fuels with a sulfur content higher than 0.5%, the condition requires the Permittee to use Section 15 to calculate the sulfur-dioxide concentration using the equations to show that the standard is not exceeded.

Either fuel sulfur testing or verification of ASTM fuel grade will verify compliance.

Condition 6

Legal Basis: [18 AAC 50.040(a)(2)(M), 1/18/97]
[18 AAC 50.350(i), 1/18/97]
[Federal Citation: 40 C.F.R. 60.116b(a) & (b), 7/1/97]
[Conditions 21 & 22 of permit 932-AC013, 12/28/99]

Factual Basis: Source IDs 1 & 2 was built or modified after July 23, 1984. The source has a storage capacity of 20,000 gallons. The source stores a volatile liquid with a maximum true vapor pressure of less than 15 kPa. Therefore, the source is subject to 40 C.F.R. 60.116b(a) and (b). This permit condition requires the same records as 40 C.F.R. 60.116b(a) and (b).

Because the condition is a permanent recordkeeping condition, no monitoring or reporting is required.

Conditions 7 – 8

Legal Basis: [18 AAC 50.030 & 18 AAC 50.055(b)(1), 1/18/97]
[18 AAC 50.110, 5/26/72]
[18 AAC 50.350(g) – (i), 1/18/97]

Factual Basis: These conditions set out the requirements for burning used oil. These requirements were contained in several pre-January 18, 1997 permits and mirror those found in the Alaska Air Quality Control Plan.

Because of various metal contaminants, used oil may have higher particulate emissions than virgin fuel oil. Staff experience indicates that burning used oil by itself may violate 18 AAC 50.055(b).

The monitoring set out for compliance with the particulate matter standard in condition 4 is not rigorous enough to detect potential violations of the standard due to burning used oil. Rather than complicate the standard monitoring, this permit requires the Permittee to blend or co-fire the used oil with at least an equal quantity of virgin fuel oil. Blending or co-firing the used oil with virgin fuel oil has been used to ensure compliance at other facilities, and the Department believes such blending, along with the normal particulate matter monitoring, will ensure compliance with the particulate matter standard. As an alternative, the Permittee can demonstrate compliance using a source test.

The various contaminants in used oil can injure human health or welfare when burned and emitted by a source. Without a site-specific risk assessment, the Department cannot determine the amount of contaminants that can be emitted safely. However, the USEPA has established specifications for used oil, and allows essentially unrestricted burning of used oil meeting these specifications. The Department is confident that used oil meeting these specifications will comply with 18 AAC 50.110. The permit requires used oil to either meet or to be blended to meet the EPA specifications, unless the Department verifies that burning the oil will meet 18 AAC 50.110.

Conditions 9-14

Legal Basis: [18 AAC 50.350(e)(3), 1/18/97]

[18 AAC 50.350(d), 6/21/98]

[Conditions 13.1, 16.1, 16.2, 16.3, 16.4, & 16.5 of Permit 9932-AC013, 12/28/99]

Factual Basis: These are specific NO_x emission limits established as BACT in construction Permit 9932-AC013. The BACT is retarding fuel injection timing: by 2 degrees for source ID 9 & 11, by 2.5 degrees for source ID 12a, and by 4 degrees for source ID 12b. The monitoring, recordkeeping, and reporting requirements were carried over from the construction permit.

Conditions 15-16

Legal Basis: [18 AAC 50.350(d), 6/21/98]

[Conditions 14.2a, c, d, & e of Permit 9932-AC013, 12/28/99]

Factual Basis: This is an ambient air monitoring requirement because dispersion models showed that the emissions could be close to violating the maximum allowed ambient concentrations. The monitoring will show how accurate the model was and may indicate the need for further emission controls.

Condition 17

Legal Basis: [18 AAC 50.350(d), 6/21/98]

[Conditions 15-15.3 of Permit 9932-AC013, 12/28/99]

Factual Basis: These increased stack heights are required to obtain better dispersion.

Condition 18

Legal Basis: [18 AAC 50.350(d), 6/21/98]

[Conditions 14.2a, c, d, & e of Permit 9932-AC013, 12/28/99]

Factual Basis: The aftercooler on source ID 9 is needed to keep the NO_x emissions low.

Conditions 19-21

Legal Basis: [18 AAC 50.350(d), 1/18/97]

[18 AAC 50.350(i), 6/21/98]

[18 AAC 50.350(k)(3), 1/18/97]

[Item 14i of COBC #99-057-50-1171, 12/13/99]

Factual Basis: Condition 19 is a requirement for a quarterly status report for conditions 17 & 18. Condition 20 requires permittee to provide additional information when the Department has determined that initial information is insufficient. Condition 21 requires a progress report every six months.

Conditions 22 - 24

Legal Basis: [18 AAC 50.050(a)(2), 1/18/97]

[18 AAC 50.055(a)(1), 1/18/97]

[18 AAC 50.055(b)(1), 1/18/97]

[18 AAC 50.055(c), 1/18/97]

Factual Basis: These are general emission standards which apply to all industrial processes fuel-burning equipment, and incinerators regardless of size. The conditions reiterate the general standards and require compliance for insignificant sources. The Permittee may not cause or allow their equipment to violate these standards. Insignificant sources are not listed

in the permit unless specific monitoring, recordkeeping and reporting are necessary to ensure compliance.

The Department finds that the insignificant sources at this facility do not need specific monitoring, recordkeeping, and reporting to ensure compliance.

Condition 25

Legal Basis: [18 AAC 50.350(m)(3), 9/4/98]

Factual Basis: The regulations require the Permittee to certify that their insignificant sources comply with applicable requirements. The condition restates the regulatory requirement.

Condition 26

Legal Basis: [18 AAC 50.040(b)(3) & 18 AAC 50.350(d)(1), 1/18/97]

[Federal Citation: 40 C.F.R. 61, Subpart M, 12/19/96]

If the Permittee engages in asbestos demolition and renovation, then these requirements may apply.

Factual Basis: The condition cites and requires compliance with the regulations that will apply if the Permittee engages in asbestos demolition or renovation. Because these regulation include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient.

Condition 27

Legal Basis: [18 AAC 50.040(d) & 18 AAC 50.350(d)(1), 1/18/97]

[Federal Citation: 40 C.F.R. 82, Subpart F, 7/1/97]

Factual Basis: The condition cites and requires compliance with the regulations that will apply if the Permittee uses certain refrigerants. Because these regulation include adequate monitoring and reporting requirements and because the Permittee is not currently engaged in such activity, simply citing the regulatory requirements is sufficient

Condition 28

Legal Basis: [18 AAC 50.045(a), 1/18/97]

[18 AAC 50.350(f)(3), 1/18/97]

[18 AAC 350(g) – (i), 1/18/97]

Applies to the Permittee because the Permittee must comply with emission standards in 18 AAC 50.

Factual Basis: The requirement prohibits diluting emissions as a means of compliance. In practical terms, dilution only affects compliance when the emissions are being measured.

Therefore, the monitoring is limited to immediately before source testing and once a year for exhaust that is continuously monitored.

Dilution can occur by design or by leaks in the exhaust ductwork. Intentional dilution is not expected to be a problem, as it would increase operating costs by increasing induced draft fan power requirements. Careful review of source test plans and operating conditions will prevent intentional dilution. Therefore, only leaks need to be monitored under this condition.

The monitoring adequately prevents dilution by requiring leaks to be repaired before compliance with the emission standards is measured.

Condition 29

Legal Basis: [18 AAC 50.045(c) & 18 AAC 50.350(f)(3), 1/18/97]
[18 AAC 50, Article 3, 1/18/97]

Applies to the Permittee because they will operate a source in Alaska.

Factual Basis: This requirement prohibits violation of the air quality standards. Alaska's air quality control plan uses construction permit to ensure that new or increased pollution will not violate these standards. Therefore, as long as the Permittee obtains and complies with the required construction permits, the new or increased pollution will not violate the standards.

Monitoring simply requires the Permittee to obtain and comply with all required permits.

Condition 30

Legal Basis: [18 AAC 50.040(e), 1/18/97]
[18 AAC 50.045(d), 1/18/97]
[18 AAC 50.350(d)(1), 1/18/97]
[18 AAC 50.350(g) – (i), 1/18/97]

Applies to the Permittee because the Permittee will engage in industrial activity at the facility.

Factual Basis: The condition restates the regulatory prohibition on fugitive dust. This prohibition calls for reasonable precautions to be taken to prevent particulate matter from being emitted into the ambient air while engaged in industrial activities.

The Permittee must keep records describing all precautions taken to prevent particulate matter from becoming airborne due to any of the activities described in this condition. If the precautions are not listed in the State Air Quality Control Plan, then the Permittee must also record a statement describing why the Permittee believes the precaution is reasonable. This monitoring ensures that the Permittee takes the reasonable precautions and has a reason for deciding if the precaution is reasonable.

The Permittee must perform visual surveys at least once each month, and take corrective action if particulate matter is observed leaving the property. This is intended to identify

whether the reasonable precautions taken are working, and to correct the problem if the precautions are not working.

Condition 31

Legal Basis: [18 AAC 50.055(g) & 18 AAC 50.310(m), 1/18/97]

Applies to the facility because the facility contains a stack or source modified after November 1, 1982.

Factual Basis: The condition restates the prohibition on stack injection (i.e., disposing of material by injecting it into a stack). No specific monitoring for this condition is practical. Compliance is ensured by inspections, because the source or stack would need to be modified to accommodate stack injection.

Condition 32

Legal Basis: [18 AAC 50.040(e), 1/18/97]

[18 AAC 50.065(a) – (e), 1/18/97]

[18 AAC 50.350(d)(1), 1/18/97]

[18 AAC 50.350(g) – (h), 1/18/97]

These conditions apply if the Permittee conducts open burning at the facility.

Factual Basis: The condition requires the Permittee to comply with the regulatory requirements when conducting open burning at the facility.

No specific monitoring is required for this condition. The permit does require the Permittee to keep “sufficient records” to demonstrate compliance with the standards for conducting open burning, but does not specify what these records should contain.

More extensive monitoring and recordkeeping is not warranted because the Permittee does not conduct open burning as a routine part of their business. Also, most of the requirements are prohibitions, which are not easily monitored. Additional monitoring is achieved through condition 33, which requires a record of complaints. Therefore, the Department does not believe that additional monitoring is warranted.

Condition 33

Legal Basis: [18 AAC 50.040(e), 1/18/97]

[18 AAC 50.110, 5/26/72]

[18 AAC 50.240(c), 1/18/97]

[18 AAC 50.350(d)(1), 1/18/97]

[18 AAC 50.350(g) – (i), 1/18/97]

Applies to the facility because the facility will have emissions.

Factual Basis: The condition restates the general prohibition on injurious air emissions, which applies to any emissions from the facility. While the other permit conditions and emissions limitation should ensure compliance with this condition, unforeseen emission impacts can violate this standard. These violations would go undetected except for complaints from affected persons. Therefore, to monitor compliance, the Permittee must monitor and respond to complaints.

The Permittee is to report any complaints and injurious emissions. The plant does not handle any large quantities of hazardous air pollutants. The Permittee must keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for these complaints and to submit copies of these records upon request of the Department.

Condition 34

Legal Basis: [18 AAC 50.235(a) & 18 AAC 50.350(f), 1/18/97]

Applies to the facility because the facility contains equipment subject to a technology-based emission standard.

Factual Basis: This condition restates a regulation that requires the Permittee to take reasonable steps to minimize emissions if certain activity causes exceedance of a technology-based emission standard. Because the technology-based emission standard itself is a condition of the permit, the Permittee will report the excess emissions per condition 48. Because the excess emission report requires information on the steps taken to minimize emissions, this report is adequate monitoring for compliance with this condition.

Condition 35

Legal Basis: [18 AAC 50.335(a), 1/18/97]

Applies if the Permittee intends to renew the permit.

Factual Basis: The condition restates the regulatory deadlines, citing the specific dates applicable to the facility. Submittal of the renewal application is sufficient monitoring, recordkeeping, and reporting.

Condition 36

Legal Basis: [18 AAC 50.220(a) & 18 AAC 50.345(a)(10), 1/18/97]

Standard condition to be included in all permits.

Factual Basis: Condition requires the Permittee to conduct source tests as requested by the Department, therefore no monitoring is needed. Conducting the requested source test is its own monitoring.

Conditions 37 through 39

Legal Basis: [18 AAC 50.030, 1/18/97]

[18 AAC 50.035, 1/18/97]

[18 AAC 50.040, 1/18/97]

[18 AAC 50.220(b) – (c), 1/18/97]

[18 AAC 50.350(g), 1/18/97]

[18 AAC 50.990(88), 1/18/97]

[Federal Citation: 40 C.F.R. 51, Appendix M, 7/1/97]

[Federal Citation: 40 C.F.R. 60, 40 C.F.R. 61, 40 C.F.R. 63, 7/1/97]

Applies when the Permittee is required to conduct a source test.

Factual Basis: These conditions restate regulatory requirements for source testing. As such, they supplement the specific monitoring requirements stated elsewhere in this permit. The tests reports required by later conditions adequately monitor compliance with these conditions, therefore no specific monitoring, reporting, or recordkeeping is needed.

Conditions 40 through 42

Legal Basis: [18 AAC 50.345(a)(10), 1/18/97]

[18 AAC 50.350(b)(3), 1/18/97]

[18 AAC 50.350(g) – (i), 1/18/97]

Applies when the Permittee is required to conduct a source test.

Factual Basis: Standard condition 18 AAC 50.345(a)(10) is incorporated through these three conditions. Because this standard condition supplements specific monitoring requirements stated elsewhere in this permit, no monitoring, reporting, or recordkeeping is required. The source test itself is adequate to monitor compliance with this condition.

Condition 43

Legal Basis: [18 AAC 50.220(f) & 18 AAC 50.350(g), 1/18/97]

Applies when the Permittee tests for compliance with the particulate matter standard.

Factual Basis: The condition incorporates a regulatory requirement for particulate matter source tests. The Permittee must use a certain equation to calculate the particulate-matter emission concentration from the source test results. Because this condition supplements specific monitoring requirements stated elsewhere in this permit, no monitoring, reporting, or recordkeeping is required.

Condition 44

Legal Basis: [18 AAC 50.205, 1/18/97]

[18 AAC 50.345(a)(9), 1/18/97]

[18 AAC 50.350(b)(3), 1/18/97]

[18 AAC 50.350(i), 1/18/97]

Applies because the permit requires the Permittee to submit reports, and because the condition is a standard condition.

Factual Basis: This condition restates the regulatory requirement that all reports must be certified. To ease the certification burden, the condition allows the excess emission reports to be certified with the semi-annual operating report, although the excess emission reports must be submitted more frequently. This condition supplements the reporting requirements of the permit and no monitoring, recordkeeping, or reporting for this condition is needed.

Condition 45

Legal Basis: [18 AAC 50.350(i), 1/18/97]

Applies because the Permittee is required to send reports to the Department.

Factual Basis: This condition merely specifies where submittals to the Department should be sent. Receipt of the submittal at the correct Department office is sufficient monitoring for this condition. This condition supplements the reporting requirements of the permit and no monitoring, recordkeeping or reporting for this condition is needed.

Condition 46

Legal Basis: [18 AAC 50.200, 1/18/97]

[18 AAC 50.345(a)(8), 1/18/97]

[18 AAC 50.350(b)(3), 1/18/97]

[18 AAC 50.350(g) – (i), 1/18/97]

Applies to all permittees, and incorporates a standard condition

Factual Basis: Incorporates a standard condition in regulation, which tells the Permittee to submit information requested by the Department. Receipt of the requested information is adequate monitoring.

Condition 47

Legal Basis: [18 AAC 50.350(h), 1/18/97]

Applies to records required by a permit.

Factual Basis: The condition restates the regulatory requirements for recordkeeping, and supplements the recordkeeping defined for specific conditions in the permit. The records being kept provide adequate evidence of compliance with this requirement, therefore, no additional monitoring, recordkeeping, or reporting is required.

Condition 48

Legal Basis: [18 AAC 50.235(a)(2), 18 AAC 50.240(c) & 18 AAC 50.350(i), 1/18/97]

Applies when the emissions or operations deviate from the requirements of the permit.

Factual Basis: This condition satisfies two regulatory requirements related to excess emissions—the technology-based emission standard regulation and the excess emission regulation. Although there are some differences between the regulations, the condition satisfies the requirements of each regulation.

The condition does not mandate the use of the Department's reporting form, but it does specify that the information listed on the form must be included in the report.

The reports themselves and the other monitoring records required under this permit provide an adequate monitoring of whether the Permittee has complied with the condition. Therefore, no additional monitoring, recordkeeping, or reporting is required.

Condition 49

Legal Basis: [18 AAC 50.040 & 18 AAC 50.350(i)(2), 1/18/97]

[Federal Citation: 40 C.F.R. 60 & 40 C.F.R. 61, 7/1/97]

Applies to facilities subject to NSPS and NESHAP federal regulations.

Factual Basis: The condition supplements the specific reporting requirements in 40 C.F.R. 60 and 40 C.F.R. 61. The permit does not need any monitoring, recordkeeping or reporting. The reports themselves are adequate monitoring for compliance with this condition.

Condition 50

Legal Basis: [18 AAC 50.350(d)(4), 1/18/97]

[18 AAC 50.350(f)(3), 1/18/97]

[18 AAC 50.350(i), 1/18/97]

Applies to all permits.

Factual Basis: The condition restates the requirements for reports listed in regulation. The condition supplements the specific reporting requirements elsewhere in the permit and does not need any monitoring, recordkeeping or reporting. The reports themselves are adequate monitoring for compliance with this condition.

Condition 51

Legal Basis: [18 AAC 50.350(j), 1/18/97]

Applies to all permittees.

Factual Basis: This condition specifies the periodic compliance certification requirements, and specifies a due date for the annual compliance certification. Because this requirement is a report, no monitoring, recordkeeping or reporting is needed.

Condition 52

Legal Basis: [18 AAC 50.350(f)(3), 1/18/97]

[Federal Citation: 40 C.F.R. 52.12(c), 7/1/99]

Applies to all federally-approved permits.

Factual Basis: This condition clarifies that any credible evidence can be used to verify compliance with the permit, not just the monitoring required under the permit. This condition is necessary to ensure compliance with the Clean Air Act. No monitoring, recordkeeping, or reporting is necessary for this condition.

Conditions 53 through 59

Legal Basis: [18 AAC 50.345(a)(1) – (7) & 18 AAC 50.350(b)(3), 1/18/97]

Applies to all operating permits.

Factual Basis: These are standard conditions required for all operating permits.

Conditions 60 through 69

Legal Basis: [18 AAC 50.350(g) – (i), 1/18/97]

Applies because these conditions detail the monitoring, recordkeeping, and reporting required in conditions 3 and 4.

Factual Basis: Each permit term and condition must include monitoring, recordkeeping, and reporting for the Permittee to show verifiable compliance with each permit term and condition.

ATTACHMENT 1**MEMORANDUM****State of Alaska****Department of Environmental Conservation
Division of Air and Water Quality - Air Quality Maintenance**

TO: John Stone, Chief

DATE: March 24, 1998

FILE: 74.05.02

FROM: John Kuterbach
Air Quality MaintenanceSUBJECT: Maximum SO₂ Concentration
from the combustion of #2
diesel fuel

EPA in their Title V permit reviews is requiring the department to demonstrate that limiting fuel sulfur to 0.5% will ensure compliance with our 500 ppmv SO₂ limit. This memorandum sets forth engineering calculations which demonstrate that combustion of #2 diesel fuel containing up to 0.5% sulfur will always comply with the 500 ppmv SO₂ limit regardless of the engine involved. I recommend that we reference these calculations in future "statements of basis" that we send to EPA with our draft operating permits.

Summary

This engineering calculation examined the stoichiometric combustion of #2 diesel fuel and calculated the maximum sulfur dioxide content of the flue gases. Typically, combustion of #2 diesel fuel can produce up to 338 ppmv SO₂ in the flue gas. Although this figure varies proportionally with the carbon content of the diesel fuel, the figure will never exceed the 500ppm limit.

I conclude that combustion of #2 diesel fuel with air will always comply with the 500ppmv emission limit. The ASTM specification for #2 diesel fuel limits sulfur to 0.5% or less.

Assumptions

All constituents of the fuel are burned proportionally

Any excess air typical of combustion would tend to dilute the SO₂ concentration in the flue gas, therefore only theoretical air is considered.

#2 diesel fuel is composed of Carbon, Hydrogen, Sulfur, and negligible amounts of Water and ash.

Ignore the water because the standard is a dry standard and the water will drop out of any calculations.

Ignore the ash as negligible unless the study predicts an SO₂ concentration greater than 450 ppm.

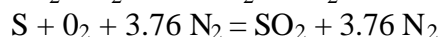
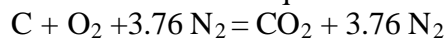
Typical #2 diesel fuel is composed of 87% Carbon, 12.5% Hydrogen, and 0.5% Sulfur

Calculations.

Using normal air for combustion (79% N₂ and 21% O₂):

For each lb-mole of Oxygen in Air, there is 3.76 lb-mole Nitrogen (1 lb-mole O₂) = (0.79/0.21)
= 3.76 lb-mole N₂

The stoichiometric equations are:



To calculate the dry exhaust gases (CO₂, N₂, SO₂) the following equations are used:

$$\text{moles CO}_2 = (\text{lb C}) \times (1 \text{ lb-mole C}/12.01 \text{ lb C}) \times (1 \text{ lb-mole CO}_2/1 \text{ lb mole C})$$

$$\begin{aligned} \text{moles N}_2 = & (\text{lb C}) \times (1 \text{ lb-mole C}/12.01 \text{ lb C}) \times (3.76 \text{ lb-mole N}_2/\text{lb-mole C}) \\ & + (\text{lb H}_2) \times (1 \text{ lb-mole H}_2/2.016 \text{ lb H}_2) \times (3.76 \text{ lb-mole N}_2/2 \text{ lb-mole H}_2) \\ & + (\text{lb S}) \times (1 \text{ lb-mole S}/32.06 \text{ lb S}) \times (3.76 \text{ lb-mole N}_2/\text{lb-mole S}) \end{aligned}$$

$$\text{moles SO}_2 = + (\text{lb S}) \times (1 \text{ lb-mole S}/32.06 \text{ lb S}) \times (\text{lb-mole SO}_2/1 \text{ lb-mole S})$$

Condensing these equations leaves:

$$\text{moles CO}_2 = \text{lb C}/12.01$$

$$\text{moles N}_2 = 3.76 \times [(\text{lb C}/12.01) + (\text{lb H}_2/4.032) + (\text{lb S}/32.06)]$$

$$\text{moles SO}_2 = \text{lb S}/32.06$$

Then, by Avogadro's Law and the definition of mole:

$$\text{ppmv SO}_2 = 1,000,000 \times [\text{moles SO}_2/(\text{moles CO}_2 + \text{moles N}_2 + \text{moles SO}_2)]$$

Results

Using 100 pounds of fuel as a basis, we examined the following three cases:

Case	Pounds in Fuel		
	Carbon	Hydrogen	Sulfur
1	87	12.5	0.5
2	96	3.5	0.5
3	78	21.5	0.5

Case 1 is the normal case, Case 2 increases carbon by 10 percent, and Case 3 decreases carbon by 10 percent.

	Case 1	Case 2	Case 3
moles CO ₂	7.24	7.99	6.49
moles N ₂	38.94	33.36	44.51
moles SO ₂	0.0156	0.0156	0.0156
Total Dry Moles	46.196	41.366	51.016
ppmv SO ₂	338	377	306

Conclusion

The above calculations show that #2 diesel fuel combusted with air will always comply with the 500 ppmv SO₂ limit. The calculations use the conservative assumptions of complete combustion and no excess air. The real world includes partial combustion and excess air, both of which would tend to dilute the SO₂ concentration in the exhaust effluent.

The equations above can be used as an initial screening for other petroleum fuels even with a higher sulfur content or significant ash.

If you agree this memorandum has value, please share it with the rest of the AQM staff.